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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/008,585	11/02/2001	Thomas R. Kurk	00W118	6594
33164	7590	05/18/2006	EXAMINER	
RAYTHEON COMPANY			SAMS, MATTHEW C	
C/O DALY, CROWLEY, MOFFORD & DURKEE, LLP			ART UNIT	PAPER NUMBER
354A TURNPIKE STREET			2617	
SUITE 301A				
CANTON, MA 02021			DATE MAILED: 05/18/2006	

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/008,585	KURK ET AL.
	Examiner Matthew C. Sams	Art Unit 2617

~ The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 13 February 2006.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 5-31 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 5-30 is/are rejected.
- 7) Claim(s) 31 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

1. This office action has been changed in response to the amendment filed on 2/13/2005.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 5-7, 10, 12, 17, 18, 20-22, 26-29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hareyama et al. (US-5,752,169 hereafter, Hareyama) in view of Westergren et al. (US-5,423,076 hereafter, Westergren).

Regarding claims 5, 10, 20, and 29, Hareyama teaches an integrated circuit transceiver chip with the transmitter having a phase locked loop frequency synthesizer (Fig. 3 [43]) and a partial first voltage controlled oscillator or buffer (Fig. 3 [431]), a first power amplifier (Fig. 3 [44]) coupled to the PLL frequency synthesizer, a receiver, a second power amplifier coupled to the first power amplifier (Fig. 3 [44 & 45]), a second power amplifier and the receiver coupled to a switch (Fig. 3 [51]) and a controller coupled to the transceiver IC. (Col. 8 lines 26-30) Hareyama differs from the claimed invention by not explicitly reciting a direct digital frequency synthesizer coupled to the

transceiver IC, a second voltage controlled oscillator coupled to a buffer and a loop filter coupled to the second voltage controlled oscillator.

In an analogous art, Westergren teaches a transceiver with a phase locked loop (Fig. 2), a direct digital frequency synthesizer (Fig. 1 [58]), a VCO (Fig. 2 [101]) coupled to a buffer (Fig. 2 [104 & 105] e.g. partial first VCO), and a low pass filter (e.g. loop filter) coupled to the VCO. (Fig. 2 [114]) At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement the transceiver IC of Hareyama after modifying it to include the components of the phase locked loop of Westergren. One of ordinary skill in the art would have been motivated to do this since the transceiver is more reliable by minimizing the number of loop circuits. (Col. 2 lines 28-33)

Regarding claim 6, Hareyama in view of Westergren teaches a phase detector (Westergren Fig. 2 [111]) coupled to the loop filter (Westergren Fig. 2 [114]) and a crystal oscillator. (Hareyama Fig. 3 [30] and Westergren Fig. 1 [40])

Regarding claim 7, Hareyama in view of Westergren teaches a low noise amplifier (Hareyama Fig. 3 [11]), a quadrature mixer pair (Hareyama Fig. 3 [S<sub>12</sub> & S<sub>22</sub>]) coupled to the low noise amplifier and the PLL frequency synthesizer, a demodulator (Hareyama Fig. 4 [18]), a first signal channel and a second signal channel coupled to the first and second quadrature signals to the demodulators. (Hareyama Fig. 3 and Fig. 4)

Regarding claim 12, Hareyama in view of Westergren teaches a phase detector (Westergren Fig. 2 [111]) coupled to the loop filter (Westergren Fig. 2 [114]) and coupling the loop filter to the VCO. (Westergren Fig. 2 [101 & 114])

Regarding claim 17, Hareyama in view of Westergren teaches the device with a global positioning indicator. (Westergren Fig. 1 [16])

Regarding claim 18, Hareyama in view of Westergren teaches transceiving data is a minimum-shift keying (MSK) which is an efficient version of frequency-shift keying. (Hareyama Col. 9 lines 13-21)

Regarding claim 21, Hareyama in view of Westergren teaches the IC has a first amplifier coupled to the PLL frequency generator section and a second amplifier coupled to the first amplifier. (Hareyama Fig. 3 [43, 44 & 45])

Regarding claim 22, Hareyama in view of Westergren teaches a low noise amplifier (Hareyama Fig. 3 [11]), a quadrature mixer pair (Hareyama Fig. 3 [S<sub>12</sub> & S<sub>22</sub>]) coupled to the LNA and a demodulator coupled to the quadrature mixer pair. (Hareyama Fig. 3 and Fig. 4 [18])

Regarding claims 26-28, Hareyama in view of Westergren teaches a transceiver IC configured to operate at and above a first frequency and at a second frequency smaller than the first frequency. (Hareyama Fig. 1)

Regarding claim 30, Hareyama in view of Westergren teaches a buffer connected to a VCO. (Westergren Fig. 2 [104 & 105])

4. Claims 8, 11, and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hareyama in view of Westergren as applied to claims 5 and 10 above, and further in view of Lemay, Jr. (US-6,392,486).

Regarding claim 8, the Hareyama in view of Westergren teach an integrated circuit transmitter/receiver that includes a controller and the limitations of claims 5 and 10 above, but differs from the claimed invention by not explicitly reciting a field programmable gate array that controls the transceiver.

In an analogous art, Lemay, Jr. teaches a transceiver that includes a field programmable gate array (Fig. 3 [310]) for control. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement the integrated transmitter/receiver of Hareyama in view of Westergren after modifying it to incorporate the field programmable gate array of Lemay, Jr. One of ordinary skill in the art would have been motivated to do this since the field programmable gate array allows for configuration of the device to perform desirable signal and data processing functions.

(Col. 4 lines 26-41)

Regarding claim 11, Hareyama in view of Westergren and Lemay, Jr. teaches of a transceiver that includes a field programmable gate array to operate the transceiver.

(Lemay, Jr. Page 4 lines 26-41)

Regarding claim 13, Hareyama in view of Westergren and Lemay, Jr. teaches a transceiver IC that has a microprocessor for controlling a voltage-controlled oscillator.

(Lemay, Jr. Fig. 2 [224 & 240], Fig. 3 [310] and Col. 4 lines 26-41)

Regarding claim 14, Hareyama in view of Westergren and Lemay, Jr. teaches a transceiver IC that has a microprocessor for controlling a voltage-controlled oscillator for setting the center transmit frequency. (Lemay, Jr. Col. 4 lines 20-26)

Regarding claim 15, Hareyama in view of Westergren and Lemay, Jr. teaches a transceiver IC that has a step of coupling a microprocessor controller to the voltage-controlled oscillator that comprises modulating a transmit frequency. (Lemay, Jr. Col. 4 lines 20-26)

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hareyama in view of Westergren as applied to claim 10 above, and further in view of Duckworth et al. (US-5,619,190 hereafter, Duckworth).

Regarding claim 16, the Hareyama in view of Westergren teach the limitations of claim 10 including a bimodal power transceiver device adapted to transceiving data in the radio frequency spectrum. Hareyama in view of Westergren differs from the claimed invention by not explicitly reciting the transceiver operates at a carrier frequency less than 200 MHz.

In an analogous art, Duckworth teaches a transmitter with a carrier frequency signal of 200 MHz and has a sleep mode for power conservation. (Col. 7 lines 50-56 and Col. 8 lines 26-32) At the time the invention was made, it would have been obvious to one of ordinary skill in the art to be motivated to incorporate the carrier frequency signal of Duckworth with the bimodal power transceiver of the Hareyama in view of Westergren because the 200 MHz carrier frequency is well known to be used for broadcast television and can be used for sending transmissions over a long distance.

6. Claims 19 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hareyama in view of Westergren as applied to claim 10 above, and further in view of Schmucker (US-3,945,008).

Regarding claim 19, the Hareyama in view of Westergren teaches a method of transceiving data in the radio frequency spectrum but differs from the claimed invention by not explicitly reciting that the transceiving data is in a landmine.

In an analogous art, Schmucker teaches a landmine that includes a transceiver. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to be motivated to use the landmine of Schmucker with the transceiver for use in the radio frequency spectrum of the Hareyama in view of Westergren because in order for the landmine to be effective, the proper time for detonation is required. (Col. 3 lines 6-47)

Regarding claim 23, the Hareyama in view of Westergren teaches a method of transceiving data in the radio frequency spectrum, but differ from the claimed invention by not showing that the transceiving data is in a weapon.

In an analogous art, Schmucker teaches a landmine that includes a transceiver. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to be motivated to use the landmine of Schmucker with the transceiver for use in the radio frequency spectrum of the Hareyama in view of Westergren because in order for the landmine to be effective, the proper time for detonation is required. (Col. 3 lines 6-47)

Regarding claim 24, Hareyama in view of Westergren and Schmucker further teaches the weapon as a landmine. (Schmucker Col. 3 lines 6-15)

Regarding claim 25, Hareyama in view of Westergren and Schmucker further teaches the weapon as a sea mine. (Schmucker Col. 3 lines 6-15)

***Allowable Subject Matter***

7. Claim 31 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

8. Applicant's arguments with respect to claims 5-31 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Sams whose telephone number is (571)272-8099. The examiner can normally be reached on M-F 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571)272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MCS  
5/1/2006



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